

Patent claims

1. A switchgear assembly system having a switchgear assembly using withdrawable unit technology with the withdrawable units being installed in switchgear cabinets, and in insert compartments there, communicating via a field bus, being uniquely identified by an appliance address, and basic information which is required for appliance operation being contained in a memory in the withdrawable unit, characterized in that the communication between at least one withdrawable unit (11) and the field bus is implemented using Ethernet TCP/IP technology, and the at least one withdrawable unit (11) is a TCP/IP interface.
2. The switchgear assembly system as claimed in claim 1, characterized in that at least one Ethernet switch (20) is provided in each switchgear cabinet (10) for communication with the at least one withdrawable unit (11), and an application server (30) which manages at least the TCP/IP address allocation and a database (40) in which at least appliance data for the at least one withdrawable unit (11) is at least stored and/or managed are provided outside the switchgear cabinet.
3. The switchgear assembly system as claimed in claim 2, characterized in that each insert compartment (12, 14, 16, 18) is allocated a unique port (13, 15, 17, 19) of the Ethernet switch (20).
4. The switchgear assembly system as claimed in one of the preceding claims, characterized in that the database (40) contains, at least for each withdrawable unit (11) at least information relating to its installation location and to its intended application.
5. The switchgear assembly system as claimed in one

of the preceding claims, characterized in that the database (40) contains, at least for each withdrawable unit (11), information relating to the Ethernet switch (20) and to the port (13, 15, 17, 19) of the Ethernet switch (20) to which the withdrawable unit (12, 14, 16, 18) is allocated.

6. The switchgear assembly system as claimed in one of the preceding claims, characterized in that the 10 appliance data can be interchanged between the database (40) and a withdrawable unit (11) via the application server (30).

7. The switchgear assembly system as claimed in one 15 of the preceding claims, characterized in that the application server (30) contains appliance identification software for identification of an appliance (11) which is allocated to one port (13, 15, 17, 19) of an Ethernet switch (20).

20 8. The switchgear assembly as claimed in claim 7, characterized in that the appliance identification software can identify the appliance type of an appliance (11) which is allocated to one port (13, 15, 17, 19) of an Ethernet switch (20).

9. The switchgear assembly system as claimed in claim 8, characterized in that the appliance 30 identification software controls the interchange of appliance data between the database (40) and a withdrawable unit (11) via the application server (30).

10. A method of installation of withdrawable units (11) in switchgear assemblies, in which case the 35 withdrawable units (11) are installed in insert compartments (12, 14, 16, 18) in a switchgear cabinet (10), communicate via a field bus, can be identified uniquely by an appliance address and contain basic

information which is required for appliance operation in a memory, characterized in that

- the communication via the field bus is based on Ethernet TCP/IP technology,
- 5 - the appliance addresses of the withdrawable units (11) are automatically allocated to them and managed by an application server (30) which is integrated in the Ethernet network, and
- at least the basic information for each 10 withdrawable unit (11) is downloaded automatically to the withdrawable unit (11) from a database (40).

11. The method as claimed in claim 10, characterized 15 in that the appliance addresses are automatically allocated to the withdrawable units (11) during or after installation in the switchgear cabinet (10) in the switchgear assembly, and/or the basic information is automatically downloaded in the withdrawable units 20 (11) during or after the installation of the withdrawable units (11) in the switchgear cabinet (10).

12. The method as claimed in claim 10 or 11, characterized in that at least the basic information 25 for each withdrawable unit (11) is downloaded from the database (40) via the application server (30).

13. The method as claimed in one of claims 10 to 12, characterized in that at least the basic information 30 and further application and appliance information for at least one withdrawable unit (11) are downloaded automatically from the database (40) to the withdrawable unit (11).

35 14. The method as claimed in one of claims 10 to 13, characterized in that the withdrawable units (11) in the switchgear cabinet (10) communicate via TCP/IP with an Ethernet switch (20) which is allocated to that

switchgear cabinet (10).

15. The method as claimed in one of claims 10 to 14, characterized in that each insert compartment (12, 14, 5 16, 18) and/or the installation location of each withdrawable unit in the switchgear cabinet is allocated a unique port (13, 15, 17, 19) of the Ethernet switch (20).
- 10 16. The method as claimed in one of claims 10 to 15, characterized in that appliance data for all the switchgear assembly appliances (11) is managed in the database (40).
- 15 17. The method as claimed in one of claims 10 to 16, characterized in that information about the use of the withdrawable unit (11) and the basic information associated with it are stored together with the information about its installation location in the 20 database (40) for each withdrawable unit (11).
18. The method as claimed in one of claims 10 to 17, characterized in that the appliance type of a withdrawable unit (11) is automatically identified by 25 the application server (30) during its installation at an installation location in the switchgear cabinet (10).
- 30 19. The method as claimed in one of claims 10 to 18, characterized in that the appliance data in the database (40) is automatically checked for compatibility with the appliance type identified by the application server (30).
- 35 20. The method as claimed in one of claims 10 to 19, characterized in that each method step can also be monitored and/or carried out manually if required.

21. A withdrawable unit (11) for installation in a switchgear assembly, characterized in that the field bus communication of the withdrawable unit (11) is based on Ethernet TCP/IP technology, and at least one
5 Ethernet TCP/IP interface is contained in the withdrawable unit (11).